WHAT IS CLAIMED IS:

1. A method for determining a germanium concentration of a silicon germanium film, said method comprising the steps of:

performing a thermal oxidation procedure on said silicon germanium film to create a layer of thermal oxide over said silicon germanium film;

measuring a thickness of said layer of thermal oxide;

providing a correlation that relates a thickness of a layer of thermal oxide created over a silicon germanium film to a germanium concentration of said silicon germanium film;

determining said germanium concentration of said silicon germanium film by identifying a germanium concentration that corresponds to said measured thickness of said layer of thermal oxide in accordance with said correlation.

2. The method as set forth in Claim 1 wherein said step of measuring a thickness of said layer of thermal oxide comprises measuring said thickness of said layer of thermal oxide in real time using one of: an interferometer, an ellipsometer, and a spectroscopic ellipsometer.

3. The method as set forth in Claim 2 further comprising the step of:

performing in real time said step of determining said germanium concentration of said silicon germanium film by identifying a germanium concentration that corresponds to said measured thickness of said layer of thermal oxide in accordance with said correlation.

4. The method as set forth in Claim 1 wherein said correlation that relates a thickness of a layer of thermal oxide created over a silicon germanium film to a germanium concentration of said silicon germanium film is an approximately linear correlation.

5. The method as set forth in Claim 4 wherein said approximately linear correlation is described by:

Oxide Thickness (Å) = 45.55035 + 2.2670656 Ge%

where said term Oxide Thickness is in units of Ångstroms; and

where said term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

6. The method as set forth in Claim 4 wherein said approximately linear correlation is described by:

Relative Oxidation Rate = 0.9795774 + 0.0487541 Ge%

where said term Relative Oxidation Rate represents a ratio of a thickness of thermal oxide on a silicon germanium film to a thickness of thermal oxide on a silicon wafer without a silicon germanium film; and

where said term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

7. The method as set forth in Claim 4 wherein said approximately linear correlation is described by:

Ge% = -20.03043 + 20.470103 Relative Oxidation Rate

where said term Relative Oxidation Rate represents a ratio of a thickness of thermal oxide on a silicon germanium film to a thickness of thermal oxide on a silicon wafer without a silicon germanium film; and

where said term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

8. The method as set forth in Claim 2 further comprising the step of:

measuring said thickness of said layer of thermal oxide in real time by making a plurality of thickness measurements of said thickness of said layer of thermal oxide in real time using one of: an interferometer, an ellipsometer, and a spectroscopic ellipsometer.

9. A method for determining a correlation between a germanium concentration of a silicon germanium film and a thickness of a layer of thermal oxide created over said silicon germanium film, said method comprising the steps of:

creating a plurality of silicon germanium films in which each silicon germanium film has a different germanium concentration;

creating a layer of thermal oxide over each of said plurality of silicon germanium films;

measuring a thickness of each of said layers of thermal oxide; and

correlating said thickness of each of said layers of thermal oxide with a corresponding value of germanium concentration.

10. The method as set forth in Claim 9 wherein said correlation between a germanium concentration of a silicon germanium film and a thickness of a layer of thermal oxide created over said silicon germanium film is an approximately linear correlation.

11. The method as set forth in Claim 10 wherein said approximately linear correlation is described by:

Oxide Thickness (Å) = 45.55035 + 2.2670656 Ge%

where the oxide thickness is in units of Ångstroms and the term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

12. The method as set forth in Claim 10 wherein said approximately linear correlation is described by:

Relative Oxidation Rate = 0.9795774 + 0.0487541 Ge%

where said term Relative Oxidation Rate represents a ratio of a thickness of thermal oxide on a silicon germanium film to a thickness of thermal oxide on a silicon wafer without a silicon germanium film; and

where said term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

13. The method as set forth in Claim 4 wherein said approximately linear correlation is described by:

Ge% = -20.03043 + 20.470103 Relative Oxidation Rate

where said term Relative Oxidation Rate represents a ratio of a thickness of thermal oxide on a silicon germanium film to a thickness of thermal oxide on a silicon wafer without a silicon germanium film; and

where said term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

14. A method for determining a germanium concentration of a silicon germanium film, said method comprising the steps of:

providing a silicon substrate layer;

depositing germanium on said silicon substrate layer to form a silicon germanium film;

performing a thermal oxidation procedure on said silicon germanium film to create a layer of thermal oxide over said silicon germanium film;

measuring a thickness of said layer of thermal oxide in real time;

providing a correlation that relates a thickness of a layer of thermal oxide created over a silicon germanium film to a germanium concentration of said silicon germanium film;

determining said germanium concentration of said silicon germanium film in real time by identifying a germanium concentration that corresponds to said measured thickness of said layer of thermal oxide in accordance with said correlation.

15. The method as set forth in Claim 14 wherein said thermal oxidation procedure is one of: a rapid thermal oxidation procedure and a furnace oxidation procedure.

16. The method as set forth in Claim 14 wherein said step of measuring a thickness of said layer of thermal oxide in real time comprises measuring said thickness of said layer of thermal oxide within a time period of approximately five minutes using one of: an interferometer, an ellipsometer, and a spectroscopic ellipsometer.

17. The method as set forth in Claim 14 wherein said step of providing a correlation that relates a thickness of a layer of thermal oxide created over a silicon germanium film to a germanium concentration of said silicon germanium film comprises the step of:

providing an approximately linear correlation described by:

Oxide Thickness (Å) = 45.55035 + 2.2670656 Ge%

where the oxide thickness is in units of Ångstroms and the term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

18. The method as set forth in Claim 14 wherein said step of providing a correlation that relates a thickness of a layer of thermal oxide created over a silicon germanium film to a germanium concentration of said silicon germanium film comprises the step of:

providing an approximately linear correlation described by:

Relative Oxidation Rate = 0.9795774 + 0.0487541 Ge%

where said term Relative Oxidation Rate represents a ratio of a thickness of thermal oxide on a silicon germanium film to a thickness of thermal oxide on a silicon wafer without a silicon germanium film; and

where said term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

19. The method as set forth in Claim 14 wherein said step of providing a correlation that relates a thickness of a layer of thermal oxide created over a silicon germanium film to a germanium concentration of said silicon germanium film comprises the step of:

providing an approximately linear correlation described by:

Ge% = -20.03043 + 20.470103 Relative Oxidation Rate

where said term Relative Oxidation Rate represents a ratio of a thickness of thermal oxide on a silicon germanium film to a thickness of thermal oxide on a silicon wafer without a silicon germanium film; and

where said term Ge% represents a germanium concentration in a silicon germanium film in terms of germanium percentage.

20. The method as set forth in Claim 14 wherein said step of depositing germanium on said silicon substrate layer to form a silicon germanium film comprises the step of:

exposing said silicon substrate layer to a gas comprising silane gas and germane gas in a hydrogen gas carrier.